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10/586,708	07/20/2006	Robert Lloyd Barbin	PU040006	8704

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EXAMINER	
RALEIGH, DONALD L	

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2879	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/586,708	BARBIN, ROBERT LLOYD	
	Examiner	Art Unit	
	DONALD L. RALEIGH	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/20/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7, 17, 22 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are very confusing and there is not enough essential information available to complete a reasonable search of the prior art. In particular, the definitions of “light output” , “minimum” and “maximum” values in claims 7 and 17 are unclear. In Claims 22 and 24, the definition of mask transmission is very unclear. The limitation “percentage of”, does it pertain to luminosity? What units are used for the determination? How is this measured? With regards to the limitation “the regions”, which regions? How are the boundaries of these regions determined? Are the maximum and minimum values adjacent to each other? In order for the maximum and minimum regions to be adjacent, they would have to be concurrent since the maximum and minimums would vary in regions larger than the exact center of the beam spot. Claims 22 and 24 requires extensive clarification. Therefore, these claims will not be examined. Appropriate correction is required.

Claim 18 is dependent upon Claim 17 and therefore can not be examined until clarifications are made in Claim 17.

Claims 8 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are:

Claims 8 and 23 recite the limitations "the CRT wherein said electron beam has a spot shape in the axis parallel to said columns described as $I = e^{-k(y-y_0)^m}$ wherein I is the electron beam intensity, k is a constant, y_0 is the position of the peak electron beam intensity for a single scan line, $y - y_0$ is the dimension from the peak electron beam intensity value and m is a value in the range of 2.0 to 2.5".

Following are some of the areas that require clarification and correction:

In the formula $I = e^{-k(y-y_0)^m}$. If k is a constant, then either its value is known or a method of finding its value is known, neither of which is supplied in the claim. Also, does this constant have a name (that can be searched for) ?

$y - y_0$ is defined as a dimension from the peak electron beam intensity value. Which dimension? Do you mean $y - y_0$ is the variation in peak electron beam intensity? Or do you mean that $y - y_0$ is the variation in location (in mm, cm, um, etc) from the peak to the minimum? What are the units of the dimension? Clarification is definitely required. The contents of claims 8 and 23 are so confusing and missing so much vital information that no reasonable search strategy of the prior art can be pursued.

Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation “wherein mask transmission is the percentage of electrons of a uniform electron beam incident on said that can propagate there through said apertures averaged over a plurality of adjacent said mask aperture columns and said regions containing said maximum and minimum values are adjacent to each other” is unclear. Particularly the limitation “electron beam incident on said” (said what?). Clarification is definitely required. It is confusing to the extent that no reasonable prior art search strategy can be employed.

Claim Objections

Claims 1, 9,18 and 24 are objected to because of the following informalities:

Claim 1:” envelope having a panel and funnel” should read “an envelope having a panel and a funnel”.

Claim 9: “wherein spacially adjacent sweeps each have a scan line spacing” should read “wherein spatially adjacent sweeps each have a scan line spacing”.

Claim 18 recites the limitation " the CRT according to Claim 17". There is insufficient antecedent basis for this limitation in the claim since claim 17, upon which it depends, refers to a display device, not the CRT.

Claim 24 refers to “The CRT” but includes no dependency on another claim. If applicant intends this as an independent claim then “the CRT” should be changed to "A CRT”. If it is intended to be a dependent claim then the claim upon which it depends must be identified.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida(US Patent No. 6,448,704) in view of Nakamura et al (US Patent No. 6,437,498) and further in view of Kang(US PG Pub. No. 2004/0104661).

Regarding Claim 1, Uchida discloses in figure 2, a cathode ray tube (title) comprising: envelope having a panel (21) and funnel (23), said panel including a sidewall portion and a faceplate portion (shown in figure 2), said faceplate portion having on its interior a luminescent screen (24), said panel further including a mask (25) contained therein, said mask (25) having columns of apertures(abstract, lines 13-16 discloses that the pitch changes vertically indicating there are columns of apertures), said columns corresponding to respective said phosphor stripes, said columns including tie bars (region between apertures) which separate said apertures from each other in said columns (see fig. 2), said apertures in said columns having an aperture pitch (see at least abstract); said funnel (23) having a neck at an end opposite of said panel (shown in figure 2), said neck containing therein an electron gun (29); said gun (29) emitting at least one electron beam (abstract, line 9).

Uchida fails to disclose the ratio of said spot size of said electron beam to said aperture pitch exceeds about 0.9.

However, Nakamura teaches in Column 8, lines 6 an aperture pitch of .28 mm resulting in a beam size of .48mm (line 35). Then the ratio of said spot size of said electron beam to said aperture pitch would be .48/.28 = 1.71 which exceeds about 0.9 .

Uchida fails to disclose said screen having a plurality of substantially straight phosphor stripes.

Kang discloses the CRT (title), in Figure 4 and ¶ [0006], lines 1-5, that the screen has a plurality of substantially straight phosphor stripes.

Kang teaches wherein the aperture pitch decreases with increasing distance from a central aperture column in at least one lateral portion across said screen (Page 5, # 10, decreases) to provide a shadow mask that simultaneously satisfies the moire and purity characteristic (¶ [0019]).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the pitch structure, as taught by Nakamura and Kang, in the CRT of Uchida, to provide a shadow mask that simultaneously satisfies the moire and purity characteristic.

Applicant is respectfully reminded that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function.

The clause in Claim 1 “emitting at least one electron beam which scans across said columns of said mask in a direction perpendicular to said stripes portions of said electron beam propagate through said apertures and impinge corresponding said phosphor stripes, said electron beam scanning across said screen in a number of

sweeps, said number of sweeps making up a full screen image defining a scan line mode, wherein adjacent sweeps each have scan line spacings, said electron beam having a spot size, said spot size varying as a function of location as said electron beam scans across said screen and said spot size being the full width of that portion of said electron beam that exceeds 5% of the peak electron beam intensity, said full width being in the dimension parallel to said columns of said mask" is a definition of the function of the device and does not structurally distinguish the apparatus from the prior art. See also MPEP §2114.

Regarding Claim 2, Uchida fails to exemplify the CRT wherein said gun is a dynamic focus electron gun or a static focus electron.

Nakamura teaches (title) the CRT (abstract, line 1) wherein said gun is a dynamic focus electron gun to project three electron beams horizontally in a line toward the screen (Column 1, lines 10-13).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the dynamic focus feature, as taught by Nakamura, in the CRT of Uchida to project three electron beams horizontally in a line toward the screen.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (704) in view of Nakamura (498) and Kang (661) and further in view of Takahashi et al (US PG Pub. No. 2006/0132018) .

Regarding Claim 3, Uchida, as modified by Nakamura and Kang, fails to exemplify the CRT wherein at least some of said apertures in said columns are staggered with respect to said apertures in said columns adjacent therewith.

Takahashi teaches the CRT (title) color picture tube)) wherein at least some of said apertures in said columns are staggered with respect to said apertures in said columns adjacent therewith (¶ [0011], lines 14-16) obviously so that the bridges at the neighboring columns are not placed on the same line.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the staggered pattern, as taught by Takahashi, in the shadow mask of Uchida, as modified by Nakamura and Kang, to insure that the bridges at the neighboring columns are not placed on the same line.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (704) in view of Nakamura (498) and Kang (661) and further in view of Houston (US Patent No. 3,778,659).

Regarding Claim 4, Uchida, as modified by Nakamura and Kang, fails to exemplify the CRT wherein said CRT operates at a number of said sweeps that are within the range of 250 to 2000.

Houston teaches a CRT (title) wherein said CRT operates at a number of said sweeps that are within the range of 250 to 2000 (Column 3, lines 54-60 (1000)) based on the desired resolution and size of the display to be presented.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the number of sweeps, as taught by Houston, in the CRT of Uchida, as modified by Nakamura and Kang, based on the desired resolution and size of the display to be presented.

Regarding Claim 5, Uchida, as modified by Nakamura and Kang, fails to exemplify the CRT wherein said columns of said apertures are oriented vertically and said sweeps are scanned horizontally.

Houston teaches a CRT (title) wherein said columns of said apertures are oriented vertically and said sweeps are scanned horizontally (Column 3, lines 37-38) to provide a display device with a high speed of operation and a high brightness of visual display (Column 2, lines 1-5).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the sweep procedure, as taught by Houston, in the device of Uchida, as modified by Nakamura and Kang, to provide a display device with a high speed of operation and a high brightness of visual display.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (704) in view of Nakamura (498) and Kang (661) and further in view of Gallaro et al (US Patent No. 4,377,768).

Regarding Claim 6, Uchida, as modified by Nakamura and Kang, fails to exemplify the CRT wherein said columns of said apertures are oriented horizontally and said sweeps are scanned vertically.

Gallaro teaches wherein said columns of said apertures are oriented horizontally and said sweeps are scanned vertically (Column 1, lines 30-42 describes the operation of a CRT, wherein as each vertical column is scanned horizontally, at the end of the row, the scan is pulled down to make the next horizontal scan which would simultaneously produce a vertical scan of the horizontal apertures to complete a full complement of odd and even fields for a complete CRT image (Column 1, lines 39-53).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the scanning method of Gallaro, in the CRT of Uchida, as modified by Nakamura and Kang, to complete a full complement of odd and even fields for a complete CRT image.

Claims 9-10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (018) in view of Nakamura (498).

Regarding Claim 9, Takahashi discloses in Figure 1, a display device (title (CRT)) comprising: envelope (10) having a panel (1) and a funnel (4), said panel including a faceplate portion (shown), said faceplate portion having a luminescent screen (6), said screen having a plurality of phosphor elements (¶ [0052], lines 1-3), each of said phosphor elements forming substantially a column (stripe shaped),

said panel (1) further including a mask (12) contained therein, said mask (12) having apertures which form substantially straight aperture columns (19)(¶ [0053], line

9), each of said apertures corresponding to a respective phosphor element (this would obviously be a necessary requirement for activating the phosphor), said apertures in each of said aperture column being separated by unetched metal (if they weren't separated there would be one big hole), said apertures in said aperture columns having an aperture pitch; said funnel (4) having a neck (3) at an end opposite of said panel (1), said neck (3) containing therein an electron gun (9); said spot size to said pitch having a ratio exceeding a value of about 0.9 along at least two of said sweeps.

Nakamura teaches in Column 8, lines 6 an aperture pitch of .28 mm resulting in a beam size of .48mm (line 35). Then the ratio of said spot size of said electron beam to said aperture pitch would be .48/.28 = 1.71 which exceeds about 0.9 to obtain a CRT capable of a high information content, large capacity and high resolution (Column 7, lines 60-61).

In regards to the limitation of "along at least two of said sweeps". Only three options exist for the aperture pitch : either it decreases in one direction (either horizontally or vertically) and increases in the other direction or vice versa or the pitch stays the same in one direction and changes in the other. In any of the mentioned situations the ratio would exceed 0.9 in at least two of the sweeps.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the beam spot/ aperture ratio, as taught by Nakamura, in the CRT of Takahashi, to obtain a CRT capable of a high information content, large capacity and high resolution.

Applicant is respectfully reminded that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function.

The clause in claim 1, "said gun emitting at least one electron beam which scans across said aperture columns, portions of said electron beam propagate through said apertures and impinge corresponding said phosphor elements, said electron beam scanning across said screen in a number of sweeps, said number of sweeps (scans) making up a full screen image being a scan line mode, wherein spacially adjacent sweeps each have a scan line spacing, said electron beam having a spot size, said spot size being a dimension of said electron beam at 5% of the peak electron beam intensity, said dimension being parallel to said aperture columns " is a statement of the function of the apparatus and does not structurally distinguish the apparatus from the prior art. See also MPEP §2114.

Regarding Claim 10, Takahashi fails to exemplify the display device wherein said ratio exceeds 0.9 throughout said screen.

Nakamura teaches in Column 8, lines 6 an aperture pitch of .28 mm resulting in a beam size of .48mm (line 35). Then the ratio of said spot size of said electron beam to said aperture pitch would be .48/.28 = 1.71 which exceeds about 0.9 to obtain a CRT capable of a high information content, large capacity and high resolution (Column 7, lines 60-61). The beam spot size of .48mm was made at the center (Column 7, lines 48-49) where it is smallest. Therefore, this ratio should increase even more at the periphery.

Nakamura provides this relationship to obtain a CRT capable of a high information content, large capacity and high resolution (Column 7, lines 60-61).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the relationship, as taught by Nakamura, in the CRT of Takahashi, to obtain a CRT capable of a high information content, large capacity and high resolution.

Regarding Claim 12, Takahashi fails to exemplify the display device wherein said device is an entertainment cathode- ray tube or a computer monitor .

Nakamura teaches wherein said device is an entertainment cathode- ray tube or a computer monitor (Column 1, lines 15-16), obviously to provide a full color display of adequate clarity.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the CRT of Takahashi in an entertainment cathode-ray tube or a computer monitor, as taught by Nakamura, to provide a full color display of adequate clarity.

Regarding Claim 13, Takahashi fails to exemplify the CRT wherein said gun is a dynamic focus electron gun or a static focus electron.

Nakamura teaches (title) the CRT (abstract, line 1) wherein said gun is a dynamic focus electron gun to project three electron beams horizontally in a line toward the screen (Column 1, lines 10-13).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the dynamic focus feature, as taught by Nakamura, in the CRT of Takahashi, to project three electron beams horizontally in a line toward the screen.

Claims 11 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (018) in view of Nakamura (498) and Kang (661).

Regarding Claim 11, Takahashi, as modified by Nakamura, fails to exemplify the display device wherein the aperture pitch decreases with increasing distance from a central aperture column in at least one lateral portion across said screen.

Kang teaches the display device (CRT (title)) wherein the aperture pitch decreases with increasing distance from a central aperture column in at least one lateral portion across said screen (Page 5, # 10, decreases) to provide a shadow mask that simultaneously satisfies the moire and purity characteristic (¶ [0019]).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the pitch structure, as taught by Kang, in the CRT of Takahashi, as modified by Nakamura, to provide a shadow mask that simultaneously satisfies the moire and purity characteristic.

Regarding Claim 19, Takahashi discloses in figure 1, a cathode ray tube (title) comprising: envelope (10) having a panel (1) and funnel (4), said funnel (4) having a neck (3) at an end opposite of said panel (1), said neck (3) containing therein an electron gun (9), said gun emitting at least one electron beam (8R), said panel (1)

including a faceplate portion (shown) having a luminescent screen (6) with a plurality of substantially straight phosphor columns (stripe shaped, ¶ [0052], lines 1-3), said panel having a mask (12) contained therein, said mask (12) having columns of apertures (19)[¶ [0053]), said columns corresponding to respective said phosphor stripes (necessary for activation of the phosphor), said columns including tie bars which separate adjacent apertures (apertures would have to be separated by connecting structures to define the individual apertures) said adjacent apertures having an aperture pitch,

Takahashi fails to disclose said aperture pitch in at least one portion of said mask decreasing with increasing distance from a central column of apertures.

Kang teaches wherein the aperture pitch decreases with increasing distance from a central aperture column in at least one lateral portion across said screen (Page 5, # 10, decreases) to provide a shadow mask that simultaneously satisfies the moire and purity characteristic (¶ [0019]).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the pitch structure, as taught by Kang, in the CRT of Takahashi, to provide a shadow mask that simultaneously satisfies the moire and purity characteristic.

Takahashi, as modified by Kang, fails to teach the ratio of said spot size of said at least one electron beam to said aperture pitch in said at least one portion of said mask exceeds about 0.9, said spot size being a dimension that is parallel to said

phosphor columns and being the full width at 5% of the greatest intensity of said electron beam.

Nakamura teaches in Column 8, line 6 an aperture pitch of .28 mm resulting in a beam size of .48mm (line 35). Then the ratio of said spot size of said electron beam to said aperture pitch would be .48/.28 = 1.71 which exceeds about 0.9 to obtain a CRT capable of a high information content, large capacity and high resolution (Column 7, lines 60-61).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the beam spot/ aperture ratio, as taught by Nakamura, in the CRT of Takahashi, as modified by Kang, to obtain a CRT capable of a high information content, large capacity and high resolution.

Regarding Claim 20, Takahashi fails to exemplify the CRT wherein said spot size to said pitch having a ratio exceeding a value of about 0.9 along at least two of said sweeps.

Nakamura, in claim 19, teaches the ratio of 1.71.

The beam spot size of .48mm of Nakamura was made at the center (Column 7, lines 48-49) where it is smallest. Therefore, this ratio should increase even more at the peripheries as additional sweeps are made from the center of the screen.

In regards to the limitation of “along at least two of said sweeps”. Only three options exist for the aperture pitch : either it decreases in one direction (either horizontally or vertically) and increases in the other direction or vice versa or the pitch

stays the same in one direction and changes in the other. In any of the mentioned situations the ratio would exceed 0.9 in at least two of the sweeps.

Nakamura provides this ratio to obtain a CRT capable of a high information content, large capacity and high resolution (Column 7, lines 60-61).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the beam spot/ aperture ratio, as taught by Nakamura, in the CRT of Takahashi, as modified by Kang, to obtain a CRT capable of a high information content, large capacity and high resolution.

Regarding Claim 21, Takahashi fails to exemplify the display device wherein said ratio exceeds 0.9 throughout said screen.

Nakamura teaches in Column 8, lines 6 an aperture pitch of .28 mm resulting in a beam size of .48mm (line 35). Then the ratio of said spot size of said electron beam to said aperture pitch would be .48/.28 = 1.71 which exceeds about 0.9 to obtain a CRT capable of a high information content, large capacity and high resolution (Column 7, lines 60-61). The beam spot size of .48mm was made at the center where it is smallest. Therefore, this ratio should increase even more at the periphery.

Nakamura provides this relationship to obtain a CRT capable of a high information content, large capacity and high resolution (Column 7, lines 60-61).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the relationship, as taught by Nakamura, in the CRT of Takahashi, to obtain a CRT capable of a high information content, large capacity and high resolution.

Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (018) in view of Nakamura (498) and further in view of Houston (659).

Regarding Claim 14,Takahashi, as modified by Nakamura, fails to exemplify the CRT wherein said CRT operates at a number of said sweeps that are within the range of 250 to 2000.

Houston teaches a CRT (title) wherein said CRT operates at a number of said sweeps that are within the range of 250 to 2000 (Column 3, lines 54-60 (1000)) based on the desired resolution and size of the display to be presented.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the number of sweeps, as taught by Houston, in the CRT of Takahashi, as modified by Nakamura, based on the desired resolution and size of the display to be presented.

Regarding Claim 15, Takahashi, as modified by Nakamura, fails to exemplify the CRT wherein said columns of said apertures are oriented vertically and said sweeps are scanned horizontally.

Houston teaches a CRT (title) wherein said columns of said apertures are oriented vertically and said sweeps are scanned horizontally (Column 3, lines 37-38) to provide a display device with a high speed of operation and a high brightness of visual display (Column 2, lines 1-5).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the sweep procedure, as taught by Houston, in the device of Takahashi, as modified by Nakamura, to provide a display device with a high speed of operation and a high brightness of visual display.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (018) in view of Nakamura (498) and further in view of Gallaro (768).

Regarding Claim 16, Takahashi, as modified by Nakamura, fails to exemplify the CRT wherein said columns of said apertures are oriented horizontally and said sweeps are scanned vertically.

Gallaro teaches wherein said columns of said apertures are oriented horizontally and said sweeps are scanned vertically (Column 1, lines 30-42 describes the operation of a CRT, wherein as each vertical column is scanned horizontally, at the end of the row, the scan is pulled down to make the next horizontal scan which would simultaneously produce a vertical scan of the horizontal apertures to complete a full complement of odd and even fields for a complete CRT image (Column 1, lines 39-53).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the scanning method of Gallaro, in the CRT of Takahashi, as modified by Nakamura, to complete a full complement of odd and even fields for a complete CRT image.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONALD L. RALEIGH whose telephone number is (571)270-3407. The examiner can normally be reached on Monday-Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter J Macchiarolo/
Primary Examiner, Art Unit 2879

/Donald L Raleigh/
Examiner, Art Unit 2879